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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,607	07/31/2003	John Santhoff	30287-103	7423

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EXAMINER
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SQUIRES, BRETT S

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/633,607

Applicant(s)

SANTHOFF ET AL.

Examiner

Brett S. Squires

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-43 is/are pending in the application.
- 4a) Of the above claim(s) 42 and 43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,3-4,8,14-21,24, 30-38, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Hinton (US 2004/0109506).

Hinton disclose an electromagnetic pulse generator for ultra-wideband communications (figure 11 ref# 1100, figure 12 ref# 1100, and figure 14 ref# 1435) having a control unit (figures 11-12 ref# 1110), at least two current sources (figure 12 ref# 1105,1205,1206), at least two switching elements connected to the current sources each of the switching elements structured to receive a signal from the control unit (figure 12 ref# 1210,1211 and page 7 paragraph 76), a switch connected to the at least two switching elements (figure 12 ref# 1213), the switch structured to receive a signal from the control unit (figures 12 ref# 1213 and page 7 paragraph 76), a load connected to the switch ("filter" figure 14 ref# 1440), a first set of resistive elements connected to the current sources and the switching elements with the resistive elements also connected to a second voltage level (figure 12 ref# 1215).

Regarding Claim 3:

Hinton discloses a second set of resistive elements connected to the switching elements and to the switch with the second set of resistive elements also connected to the second voltage level (figure 12 ref# 1105 and page 7 paragraph 77).

Regarding Claim 4:

See page 6 paragraphs 70-72.

Regarding Claim 8:

See pages 6-7 paragraphs 75-76.

Regarding Claims 14-19:

See pages 2-3 paragraphs 33-41

Regarding Claim 20:

Hinton discloses an electromagnetic pulse generator for ultra-wideband communications (figure 11 ref# 1100, figure 12 ref# 1100, and figure 14 ref# 1435) having a control unit (figures 11-12 ref# 1110), a first set of current sources connected to a first voltage (figure 12 ref# 1105,1205,1206), a first set of switching elements connected to the first set of current sources with each of the first set of switching elements structured to receive a signal from the control unit (figure 12 ref# 1210,1211 and page 7 paragraph 76), a switch connected to the first set of switching elements, the switch structured to receive a signal from the control unit (figures 12 ref# 1213 and page 6 paragraph 76), a second set of switching elements connected to the switch with each

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of the second set of switching elements structured to receive a signal from the control unit (figure 12 ref# 1105,  $\Phi 1$ ,  $\Phi 2$  and page 7 paragraph 76 [The examiner would like to point out that the switches in the first amplifier block ref# 1105 labeled with both a reference number such as 1210 and a reference symbol such as  $\Phi 4$  will be referred to by their reference number while the switches in the second amplifier block labeled with just a reference symbol such as  $\Phi 4$  will be referred to by their reference symbol.]), a second set of current sources connected to the second set of switching elements with each of the second set of current sources connected to a second voltage level (figure 12 ref# Vdd/2, 1105), and a load connected to the switch ("filter" figure 14 ref# 1440).

Regarding Claim 21:

See page 6 paragraphs 70-72.

Regarding Claim 24:

See pages 6-7 paragraphs 75-76.

Regarding Claims 30-35:

See pages 2-3 paragraphs 33-41

Regarding Claim 36-38 and 40:

Hinton discloses an electromagnetic pulse generating system for ultra-wideband communications having a control means for generating a plurality of digital signals (figures 11-12 ref# 1110 and page 6 paragraphs 70-72), series connected electromagnetic pulse generating means for generating a plurality of electromagnetic

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pulses in response to the plurality of digital signal ("pulse generator" figure 11 ref# 1100, figure 12 ref# 1100, figure 14 ref# 1435), and aggregating means for combining the plurality of electromagnetic pulses ("filter" figure 14 ref# 1440 and pages 4-5 paragraphs 56-58).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 21, and 41 are rejected under 35 U.S.C. 103(a) as being obvious over Hinton (US 2004/0109506) and McCorkle (US 6,735,238).

Hinton discloses the above stated electromagnetic pulse generator for ultra-wideband communications having a control unit, but does not disclose the control unit is a microprocessor or the aggregating means is a summing circuit.

McCorkle discloses an ultra wideband communication system, method, and device with low noise pulse formation having microprocessor control unit (col. 13 lines 53-67 and col. 14 lines 1-9) and a multiplier aggregating means (col. 20 lines 46-67 and col. 21 lines 1-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hinton to include a microprocessor control unit such as that taught by McCorkle in order to allow the electromagnetic pulse generator

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for ultra-wideband communications to use the appropriate software readily prepared by programmers for ultra wideband communications.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified Hinton to include a multiplier aggregating means such as that taught by McCorkle in order to allow the electromagnetic pulse generator for ultra-wideband communications to use different encoding schemes with different data rates from transmitting data.

5. Claims 6, 7, 22, 23, and 28 are rejected under 35 U.S.C. 103(a) as being obvious over Hinton (US 2004/0109506) and Beeman (US 6,614,284).

Hinton discloses the above stated electromagnetic pulse generator for ultra-wideband communications having a control unit, but does not disclose the current sources are Wilson current mirrors and Widlar current mirrors.

Beeman discloses a Widlar current mirror (figure 6 and col. 4 lines 37-44) and a Wilson current mirror (figure 7 and col. 4 lines 45-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hinton to include using current mirrors such as those taught by Beeman in order to have all of the current sources producing a faithful copy of the desired current.

6. Claims 9 and 25 are rejected under 35 U.S.C. 103(a) as being obvious over Hinton (US 2004/0109506) and Batra (US 2003/0227980).

Hinton discloses the above stated electromagnetic pulse generator for ultra-wideband communications having a first set of current sources connected to a first voltage (figure 12 ref# 1105,1205,1206,1207,1208), but does not disclose the current source provides a substantially different current than a second current source

Batra discloses an electromagnetic pulse generator for ultra-wideband communications (figure 6a ref# 600) having a control unit (page 5 paragraph 59), at least two current sources (figure 6a ref# 600,611,612,613,614), at least two switching elements connected to the current sources each of the switching elements structured to receive a signal from the control unit (figure 6a ref# 600,615,616,617,618), a switch connected to the at least two switching elements, the switch structured to receive a signal from the control unit (page 5 paragraph 59), and a load connected to the switch ("filter" figure 3 ref# 340). Batra further discloses the current sources are turned on based on the information obtained from a memory to produce two different currents (abstract and page 1 paragraphs 9 and 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hinton to include to current sources that produce two different currents such as that disclosed by Batra in order to increase the flexibility of the electromagnetic pulse generator by allowing more than one type of pulse to be generated by the current sources (page 1 paragraphs 5 and 6).

7. Claims 10-12 and 26-27 are rejected under 35 U.S.C. 103(a) as being obvious over Hinton (US 2004/0109506) and Libove (US 2003/0048212).



Hinton discloses the above stated electromagnetic pulse generator for ultra-wideband communications having a switch connected to the current sources, but does not disclose switch comprises an inverter composed of transistors.

Libove discloses multiple transistor pairs acting as voltage level activated switches (figure 3 and page 4 paragraph 54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hinton to include using multiple transistor pairs acting as voltage level activated switches such as that disclosed by Libove in order to increase the switching speed of the electromagnetic pulse generating circuit by using transistor switches instead of mechanical switches.

8. Claims 13 and 29 are rejected under 35 U.S.C. 103(a) as being obvious over Hinton (US 2004/0109506) and Dvorak (US 6,522,210).

Hinton discloses the above stated electromagnetic pulse generator for ultra-wideband communications having a filter as the load, but is silent on the type of filter being used.

Dvorak discloses an RC filter connected to a pulse generator (figure 3 ref# 120, col. 6 lines 66-67, and col. 7 lines 1-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hinton to include an RC filter such as that discloses by Dvorak in order to remove noise from the electromagnetic pulse generator's output.

9. Claim 39 is rejected under 35 U.S.C. 103(a) as being obvious over Hinton (US 2004/0109506) and Nagao (US 6,653,993).

Hinton discloses the above stated electromagnetic pulse generator for ultra-wideband communications, but does not disclose the electromagnetic pulse generating means are connected in parallel.

Nagao discloses two pulse generator connected in parallel (figure 9 and col. 10 lines 52-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hinton to include pulse generators connected in parallel such as that disclosed Nagao in order to allow the electromagnetic pulse generator for ultra-wideband communications to produce a two-step falling waveform.

### ***Response to Arguments***

10. Applicant's arguments filed October 26, 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that Hinton's provisional application 60/423,697 does not disclose a control unit for actuating the switches in the pulse generator circuit shown in figure 13, the examiner respectfully points out that it is inherent that a control unit is present in the pulse generator circuit for actuating the switches so that data can be transmitted within the ultra-wideband spectrum because the switches are not able to actuate themselves. The examiner would like to further point out figure 13 of provisional application 60/423,697 illustrates that the switches are

being controlled, please see the arrows in figure 13 that depict the switches being actuated from the open position to the closed position. The examiner would like to even further point out that figure 14 of provisional application 60/423,697 illustrates timing diagrams for actuating the switches shown in figure 13 at speeds faster than a human could manually actuate the switches.

In response to applicant's argument that Hinton's provisional application 60/423,697 does not disclose a switch structured to receive a signal from the control unit, this argument is moot in view of the above new interpretation of Hinton (US 2004/0109506).

In response to applicant's argument that Hinton's provisional application 60/423,697 does not disclose a control means for generating a plurality of digital signals, the examiner would like to first point out that a plurality is interpreted to mean one or more and secondly point out that the a control unit actuating the eight switches in the pulse generator circuit shown in figure 13 of provisional application 60/423,697 is inherently disclosed by the provisional application, please see above response to arguments for further proof of inherency.

### ***Conclusion***


11. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure. While reference numbers, figures, and cited locations in the prior art are provided, it is respectfully requested that applicant consider the prior art references in their entirety.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brett S. Squires whose telephone number is (571)272-2268. The examiner can normally be reached on 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brett S Squires  
Examiner  
Art Unit 2836



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